Chod Harris VP2ML Editor

The DX Bulletin

America's Premier Weekly Amateur Radio Publication

SPECIAL REPORT

Mt. Athos Report
by Eric Sjölund SMØAGD

A few days ago I returned from Thessaloniki, Greece where I met the /SY operators. I went to Greece on vacation with my wife, the trip was planned since long time. The permission from the monks came as a big surprise for everybody but was the result of long time negotiations from the SV2-group. I was on the initial list of operators but only local operators were accepted. They worked 21,623 QSO's but obviously they are not experienced DX-operators. They have established very good relations with the monks and there are good possibilities that the permission will be renewed next year.

1. The monastery of Docheiariou where the operation took place. (SMØAGD photo.)

The operation took place at the monastery of Docheiariou, which lies about midway down the Mt. Athos peninsula. It is at sea level on the SW side of the peninsula. The hills just behind are covering the horizon from NW to East and are up to 6ØØ meters high. The signals were very weak in Sweden and they worked only a few UA and JAs. I saw the logs but could not find many W6 either. One day they mounted a portable operation from one of the hilltops and could work some more JAs from there. This is something which must be changed another year.

The group brought 6 transceivers and 2 linear amplifiers. Antennas included two yagi beams, of three and two elements, verticals and long wires. Two generators provided power. Of the 21,263 QSOs, approximately 3ØØØ were on CW, all by SV2UF. They made around 1ØØ QSOs on 16Ø m. Apart from the radio operation, they did participate in the daily life in the monastery: fishing, picking grapes, repairing houses and attending masses.

It was with special interest I was invited to a meeting where Apollo, the monk who is studying ham-radio, was present. Myself, and I guess many others,

2. The six operators: left to right: standing SV2QO/Alex, SV2UA/George, SV2RE/Nikos; sitting SV2TX/Paul, SV2UF/Lefteris, and SV2WT/Nick.

have been doubtful whether this was possible. Apollo expressed genuine interest in amateur-radio, he tried to pass the examination some time ago but his CW-reception wasn't accepted. But he is determined to try again. Work and religious activity takes 16 hours per day in the monastery so it is hard to understand how he can find time for something as different as CW-training. Strange, but there he was in his black monk-clothing. I estimate his age to about 35 years. Apollo expressed concern that he would never be able to buy his own radio station. I told him not to worry, there must be groups in various parts of the world who would be pleased to present him a radio free of charge.

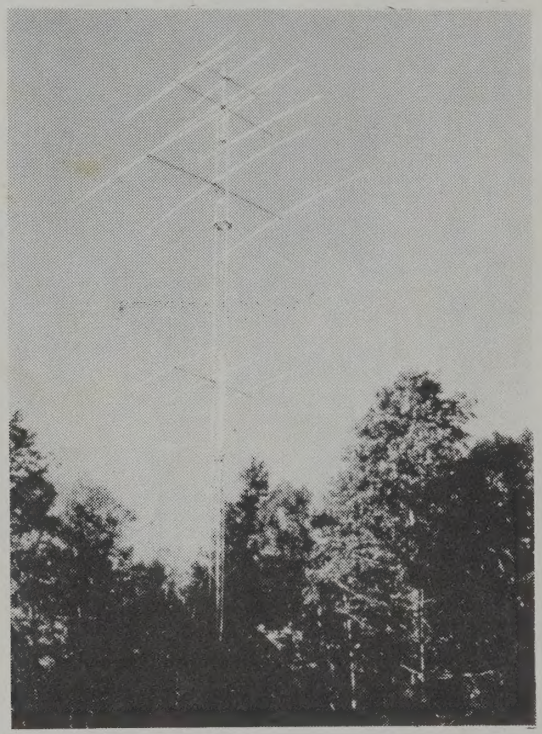
I am sure this last operation from Mt Athos was possible only thanks to recommendations from Apollo.

EQUIPMENT NOTES

Rotating Towers
by Dick Weber K5IU

Over the past year or so there have been several articles about rotating towers in various magazines. In the August, 1986, issue of CQ an article appeared by N5RM which described his 145 ft rotating tower and, most recently, in the February issue of CQ, Mr. Karl Thurber, W8FX, did an overview of the hardware offered by me to rotate either 45 or 55 tower. In all of this, the questions I am asked most often have to do with possible system configurations and the strength of my hardware.

When looking at a hardware system, like a rotating tower, very important considerations are the cost and value of the end product. Will the system hold up over a very long time period, can it be repaired readily, is it a cost effective way, compared to other options, to achieve the desired goal?



The rotating tower at N8RA/1. The top two antennas have a separate rotor, and can point independently of the lower antennas.

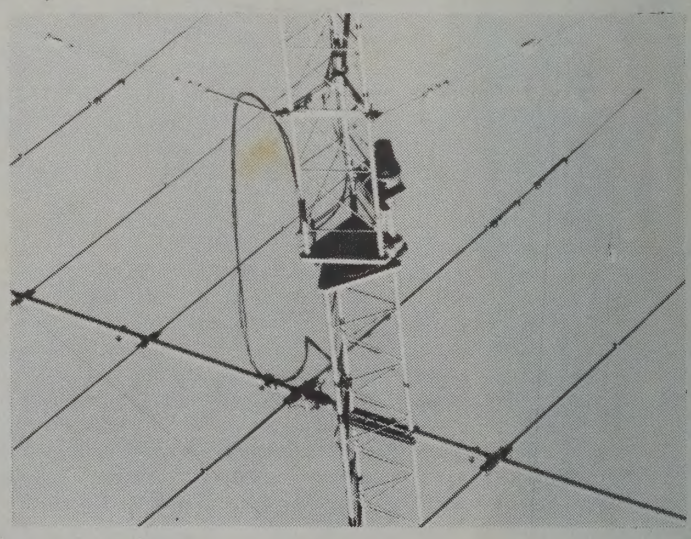
There are several problems which a rotating tower solves. It is one of the ways to rotate stacked arrays, stacked arrays in conjunction with separate antennas, or separate antennas. If you decided to have a rotating tower to handle a stacked array you could then add other antennas or other stacked arrays. In addition to stacked arrays, a rotating tower can allow the mounting of antennas at desired or optimum heights. This is quite a change from being limited to a supporting mast for two or three antennas of which one may be at a optimum height and not so for the others. When convinced that a rotating tower is the ticket, a lot of other design freedom for other uses is realized.

If the goal is to rotate stacked arrays, the rotating tower is a viable solution. If limited real estate and the desire for a large number of antennas is the problem, a rotating tower again is a viable option. As an option, a rotating tower can accommodate at least three tower's worth of antennas with a lower cost and the flexibility that, in most cases, none of the three towers can offer singularly or collectively.

In prior years, rotating tower hardware was not generally available to everyone. The cost of most of these installations was inordinate and thought to be affordable by a fortunate few. Hopefully that has changed. A recent installation by Chet Slabinski, N8RA/1, of a one hundred foot 45G rotating tower shows this point. In addition, the design approach taken on the hardware lends itself to a high degree of flexibility in configuring a system and at a much more reasonable investment.

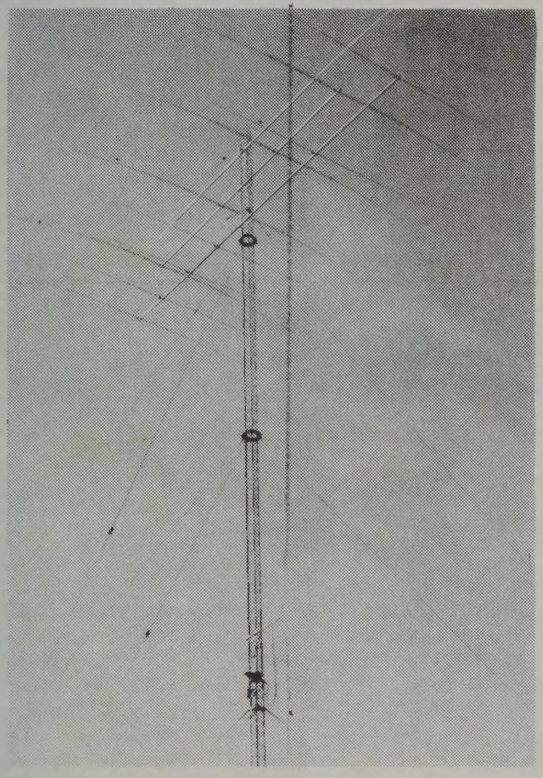
Chet's rotating tower has the bottom fifty feet fixed with the top fifty feet rotatable. He used a rotating base assembly at the fifty foot level and one guy wire bearing at eighty feet with twenty feet of tower above the single guy wire bearing. The design of the rotating base assembly is such that it can be installed at ground level or at an elevated position. This allows the use of fewer guy wire bearings. If there are no antennas below, as in this case, fifty feet, then put the rotating base there and minimize the number of guy wire bearings needed. This is not the case for prior systems which had the rotating base at ground level.

One other flexibility Chet had was the ability to put twenty feet of tower above the guy wire bearing. This feature gave him a twenty foot mast for mounting antennas and other accessories; not to mention that as a mast it can be climbed! The guy wire bearing slips in line with the tower sections, where the actual connection between the tower sections above and below is limited to the strength of the tower itself. This feature was further exploited when he mounted a separate rotator in the top tower section with a mast supporting three elements at eighty feet.



The bottom bearing of the rotating tower system, at K5IU's QTH.

A bit more formidable installation can be found at W6GO's. The rotating base assembly is at seventy feet, guy wire bearings at one hundred and at one hundred thirty feet with twenty feet of tower above the top guy wire bearing. Jay's installation uses 55G tower where the top twenty feet supports a four element forty meter beam, a six element twenty meter beam and an eighty meter dipole. In addition, there is [was -ed.] a KT-34XA at one hundred feet. The tower has been well exploited. A minimum of guy wire bearings have been used and a large number of antennas mounted.



W6GO's rotating tower, with 6 elements on 20, 4 on 40, and a rotatable dipole for 80 above the top guy bearing.

These two examples show some of the flexibility obtainable with the hardware available. But what about the strength of the hardware and ease of repair? The rotating base assembly is made of steel plates one inch thick for the 45 unit and one and a quarter for the 55 unit. The bearing which holds up the tower is a commercially available unit with a seventeen thousand pound vertical load rating. It and the drive sprocket under the tower can be replaced with the tower in place. The standard hardware is designed to mount an HDR 300 rotator, although the mounting brackets have been easily modified to accept prop-pitch motors for the 200 foot rotating towers at K5GW and W7IVX. A separate drive shaft is held in a pillow block bearing to take the drive chain tension rather than having it go into the rotator housing. The drive chain is a #50 chain with an ultimate strength of six thousand pounds and the bearing holding the drive shaft has a six thousand pound rating. The bearings, chain, and sprockets are commercially available.

Guy wire bearings are constructed with an inner track which mounts in line with the tower sections at a tower joint and an outer ring which houses cam follower bearing units. The track is one and a quarter inch thick steel for the 45 unit and one and a half inch thick for the 55 unit. Three cam follower units are used for the vertical load and three for the horizontal load placed on the load rating of eleven thousand pounds each and are commercially available. A bearing unit can be changed in a few minutes with the tower in place. In both cases the rotating base and guy wire bearing are several times stronger than the tower or guy wire with which it is used. The key components are easily replaced and can be purchased at a bearing supply store. In addition, the drive shaft and drive sprocket are clear cadmium plated while the rotating base halves and guy wire bearing components are hot dip galvanized.

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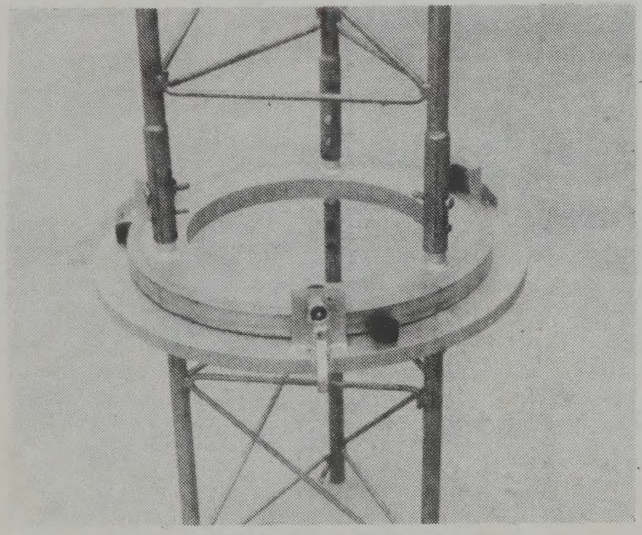

The guy wire bearing, at ground level.

Rotating tower hardware is now available which gives the owner tremendous flexibility in system design and utilization. The hardware offered is soundly built with commercially available bearings which are easily replaced if ever needed.

As a final note, it appears that Texas is the rotating tower center of the world. On a fifty mile straight line from Greenville to Prosper, you will find almost evenly spaced the rotating towers of N5RM, K5GW, N5UA, and K5IU.

[Jay O'Brien W6GO reports that his K5IU rotating tower works fine, without problems. The aspect of the system that Jay appreciates the most is having a substantial mast above the top guy point. "You can support anything on 40 feet of Rohn 45," he says.

[For more information on Dick's line of tower rotating hardware, contact him at Box 44, Prosper TX 75078. -ed.]

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